ARMY MANTECH COMMUNITY RECOGNIZED AT DEFENSE MANUFACTURING CONFERENCE 2001

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Introduction

The Army manufacturing technology community was twice recognized for outstanding achievements late last year at the annual Defense Manufacturing Conference 2001 (DMC 2001) in Las Vegas, NV. Hosted by the Department of the Army, the conference drew more than 900 leaders from government, industry, and academia. The purpose was to address critical DOD manufacturing and sustainment initiatives. For the second consecutive year, the Army received the Defense Manufacturing Technology Achievement Award. In addition, it shared an R&D 100 Award presented by *R&D Magazine*.

Defense Manufacturing Technology Achievement Award

The Director of Defense Research and Engineering and the Joint Defense Manufacturing Technology Panel (JDMTP) sponsor the annual Defense Manufacturing Technology Achievement Award, which was established in 1999. The purpose of this award is to recognize and honor the individuals most responsible for outstanding technical accomplishments in achieving the vision of the DOD Manufacturing Technology (MANTECH) Program. That vision is to "Realize a responsive, world-class manufacturing capability to affordably meet the warfighters' needs throughout the defense system life cycle."

Criteria

This award is made to the individual or small group from the government and/or private sector most responsible for a specific innovative manufacturing technology achievement that has had a significant impact on one or more of the following: rapid transition of Defense-essential or Defense-unique technologies, affordability, cycle time, readiness, quality, and/or decoupling cost from volume.

Nominations

Manufacturing technology projects that were considered for the 2001 Defense Manufacturing Technology Achievement Award were completed and/or demonstrated in FYs 00 or 01 and were funded through the DOD MANTECH Program.

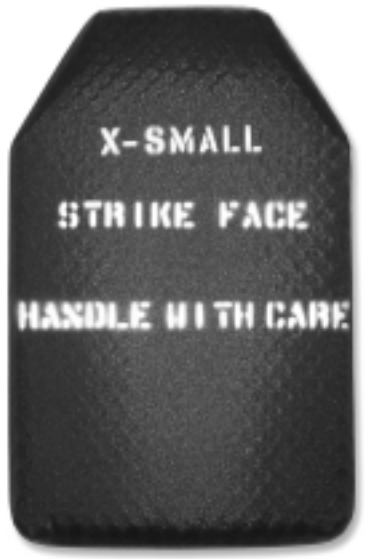
The JDMTP subpanels made nominations. The selection committee consisted of the four JDMTP subpanel heads, the Office of the Deputy Under Secretary of Defense for Science and Technology ex-officio member of the JDMTP, and senior Service and Defense Logistics Agency representatives.

Recipient

Selected from among six nominees, the winner of the Defense Manufacturing Achievement Award was a team headed by the Natick Soldier Center, Natick, MA. The team was cited for its Enhanced Manufacturing Processes for Body Armor Materials project. Award recipients were James

2001 Defense Manufacturing Technology Achievement Award. *Dr. A. Michael Andrews II (far left), Deputy Assistant Secretary of the Army for Research and Technology, OASAALT; and Dr. Ronald M. Sega (far right), Director of Defense Research and Engineering; flank award recipients (from left to right) Ron Fielding (accepting the award for Robert Monks, Simula Safety Systems Inc.); Richard Palicka, CERCOM Inc.; and James Mackiewicz and Janice Knowlton, U.S. Army Natick Soldier Center.*

Interceptor jacket



Siliconized silicon carbide final assembled plate

2001 Defense MANTECH Achievement Award Recipient: Army MANTECH Enhanced Manufacturing Processes For Body Armor Materials

Mackiewicz and Janice Knowlton, U.S. Army Natick Soldier Center; Robert Monks, Simula Safety Systems Inc., Phoenix, AZ; and Richard Palicka, CERCOM Inc., Vista, CA. Dr. Ronald M. Sega, Director of Defense Research and Engineering, stated, "Thanks to the dedicated and outstanding efforts of the award-winning team, the soldiers and Marines who may be in harm's way participating in Operation Enduring Freedom will be wearing the best ballistic protection available in the world today."

R&D 100 Award. *Shown left to right are award recipients Stanley P. Kopacz, U.S. Army Tank-automotive and Armaments Command; Walter N. Roy, U.S. Army Research Laboratory; Carol Gardinier, Program Manager for MANTECH, HQ, AMC; Dr. Robert S. Rohde, Deputy Director for Laboratory Management, Office of the Deputy Assistant Secretary of the Army for Research and Technology, OASAALT; and Harvey Pollicove, Director of COM. Dr. A. Michael Andrews II, Deputy Assistant Secretary of the Army for Research and Technology, OASAALT, is shown far right. (Award recipients Don Golini, President of QED Technologies, and Robert T. Volz, U.S. Army Tank-automotive and Armaments Command, are not pictured.)*

The current interceptor body armor jacket can stop 9mm handgun bullets. Now, because of the work of this team and the success of this MANTECH project, two highly effective, lightweight ceramic armor materials have been developed that vastly enhance the interceptor's capabilities. Siliconized silicon carbide and boron carbide plates that can stop rifle or machine-gun fire, which was not possible with this jacket in the past, are now available to insert in the jacket's pockets. Simula Safety Systems Inc., with a production capacity of 5,000 plates per month, has already delivered 45,000 of its siliconized silicon carbide plates and is under contract to deliver 140,000 more. Twelve thousand CERCOM boron carbide plates have also been fielded. The new armor plates are 55 percent lighter than traditional body armor and cost approximately 60 percent less than the high-performance armor plates that were available at the start of this project.

It is also noteworthy that this project uses not only Army MANTECH money but also significant funding contributions from Army and Marine Corps program offices and private industry.

R&D 100 Awards

The R&D 100 Awards, which were established in 1963, are considered the most prestigious honor in applied research. Winners are selected by the editors of *R&D Magazine*, based on the votes and comments of a panel of outside judges chosen from among professional consultants, university faculty, and industrial researchers with superior expertise and experience. The goal is to pick the 100 most technologically significant new products from among the entries.

Criteria

Products considered for the R&D 100 Award must have been available for sale or licensing during the calendar year preceding the judging. The key criterion is technological significance. This can basically be defined as improvements resulting from major technological breakthroughs. The judges look for "leapfrog" gains in

MRF is a revolutionary process. Its extreme accuracy and computer-controlled stability allow the fabrication and polishing of exceptionally precise spherical, aspheric, and nontraditional free-form optical shapes.

performance, not routine or expected incremental improvements.

Army MANTECH Program Selected

During DMC 2001, the Army MANTECH Program was recognized as co-winner of an R&D 100 Award. The other recipients are the Army Center for Optics Manufacturing (COM) at the University of Rochester, and QED Technologies, LLC, a COM spinoff company headquartered in Rochester, NY. The individuals recognized were Don Golini, President of QED Technologies; Harvey Pollicove, Director of COM; Dr. Robert S. Rohde, Deputy Director for Laboratory Management, Office of the Deputy Assistant Secretary of the Army for Research and Technology, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology (OASAALT); Carol Gardinier, Program Manager for MANTECH, Headquarters, U.S. Army Materiel Command (HQ, AMC); Walter N. Roy, U.S. Army Research Laboratory; and Stanley P. Kopacz and Robert T. Volz, U.S. Army Tank-automotive and Armaments Command.

This award-winning DOD-university-industry team developed and improved a revolutionary manufacturing technology that advanced optics polishing from an art to a science. The Army COM, supported by Army MANTECH efforts, has been very successful in commercializing deterministic processing for optics manufacturing through the advent of the Q22 system built by QED Technologies, LLC.

The team developed the technology to use the unique properties of magnetorheological fluids to form a point polishing source with a constant removal rate. The computer-controlled deterministic optical finishing technology, magnetorheological finishing (MRF), makes possible an affordable manufacturing process for producing the high-precision optics that are required to enhance the target acquisition, identification, surveillance, and communication capabilities of today's and tomorrow's warfighters and their weapon systems.

MRF is a revolutionary process. Its extreme accuracy and computer-controlled stability allow the fabrication and polishing of exceptionally precise spherical, aspheric, and nontraditional free-form optical shapes. Its technology enables improvements for all optical and electro-optical systems and has application in both military and commercial arenas. MRF will enable new technologies and special-use optical products that are being developed for miniaturized opto-electromechanical systems, megapixal recording devices, optical communications, computer storage, and integrated circuit fabrication.

The Q22 MRF system is commercially available and has received industry acclaim. Every manufacturer of photolithographic optics and several major precision optic shops in the United States have already installed multiple Q22 MRF systems to produce ultrahigh precision spheres and aspheres 24 hours a day. The bottom line is that this technology is implemented on the factory floor.

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